ENVIRONMENTAL ASSESSMENT

ELY URBAN INTERFACE PROJECT, BUREAU OF LAND MANAGEMENT AND U.S. FOREST SERVICE, ELY, NEVADA

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This environmental analysis was prepared by Argonne National Laboratories
for the Ely Field Office
Bureau of Land Management
U.S. Department of the Interior
Ely, Nevada
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Summary

The Ely Urban Interface Project has two objectives. The first is human health and safety, and protection of property. The second is ecosystem restoration.

In an effort to prevent any injury or loss of life that might occur as a result of catastrophic wildfire and related flooding from threatening the community of Ely, the Bureau of Land Management is proposing to reduce the number of burnable fuels currently accumulating on approximately 9,400 acres of BLM and U.S. Forest Service administered public lands adjacent to the Ely community. On BLM administered lands, approximately 7,200 acres would be treated, while on Forest Service administered lands, approximately 2,200 acres would be treated.

The proposed project would, via mechanical means, thin and chip selected Pinyon-Juniper trees from rangeland, savanna-transition and woodland communities, leaving behind on the rangeland communities approximately five trees per acre, in the savanna-transition communities between five and 20 trees per acre, and in the woodlands communities between 20 and 60 trees per acre.

Upon completion, the three-year project, planned for an area south of and adjacent to Ely, would help to establish healthy communities, be they grass, shrub or woodland, all the while maintaining aviary habitat and wildlife corridors.

Were no action to be taken, wildfires within the proposed treatment area would increase both in intensity and rate of spread, because of the accumulation of ready-to-burn fuel sources. As has already been seen elsewhere in Nevada, replacing native species in the wake of a catastrophic fire would be any of a wide variety of non-native invasive plant species and/or noxious weeds, for example, cheatgrass.

As with any adaptive management process, input from both interested members of the public and participating university researchers has, and will continue to play over the next three years of the project an integral and very vital role in the decision making and monitoring processes.

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ELY, NEVADA**

1 INTRODUCTION

The Ely Field Office of the Bureau of Land Management (BLM) and the Ely Ranger District of the U.S. Forest Service (USFS) are proposing to implement vegetation treatments to reduce hazardous fuel loadings on approximately 9,400 acres of BLM and Forest Service administered lands adjacent to Ely, Nevada (Figure 1 and Table 1). The proposed action, referred to as the Ely Urban Interface Project, is to mechanically thin and chip pinyon (Pinus monophylla) and juniper (Juniperus osteosperma) trees in a manner that would establish sagebrush (Artemesia arbuscula nova and Artemesia tridentata wyomingensis) communities, transition zones (e.g., savanna conditions with scattered clumps or individual pinyon and juniper trees), maintain wildlife corridors, and reduce woodland canopy density. The proposal also seeks to restore ecological health to the treatment area. The proposed landscape vegetation patterns would reduce the risk of catastrophic wildfire and protect human health and safety by reducing hazardous fuel loading and fuel continuity which can produce high intensity crown fires.

The project area is adjacent to Ely, Nevada, and extends approximately 13 miles south along the lower slopes of the eastern side of the Egan range (Figure 1). Elevations range from 6,585 to 7,953 feet. Private land borders the project area, and other private holdings occur in the vicinity of the project area. Approximately 100 homes are located in close proximity to the project area.

The climate of Ely is semiarid with a bimodal precipitation pattern. Precipitation ranges from 8 to 14 inches per year, with approximately half occurring as snow during the winter months. Summer rains tend to be more sporadic and are often punctuated by periods of drought.

Ecosystem health is a condition in which a plant or animal community has the capability for renewal across the landscape, for recovery from a wide range of disturbances, and for retention of its ecological resiliency, while meeting current and future needs of people for desired levels of values, uses, products, and services. Considerations of ecosystem health include diversity and density of plant and animal species, and healthy, productive watersheds. It would also consider actions to reduce or control invasive and noxious weeds, nutrient losses from soil erosion, and loss of native seed sources and soil seed bank.

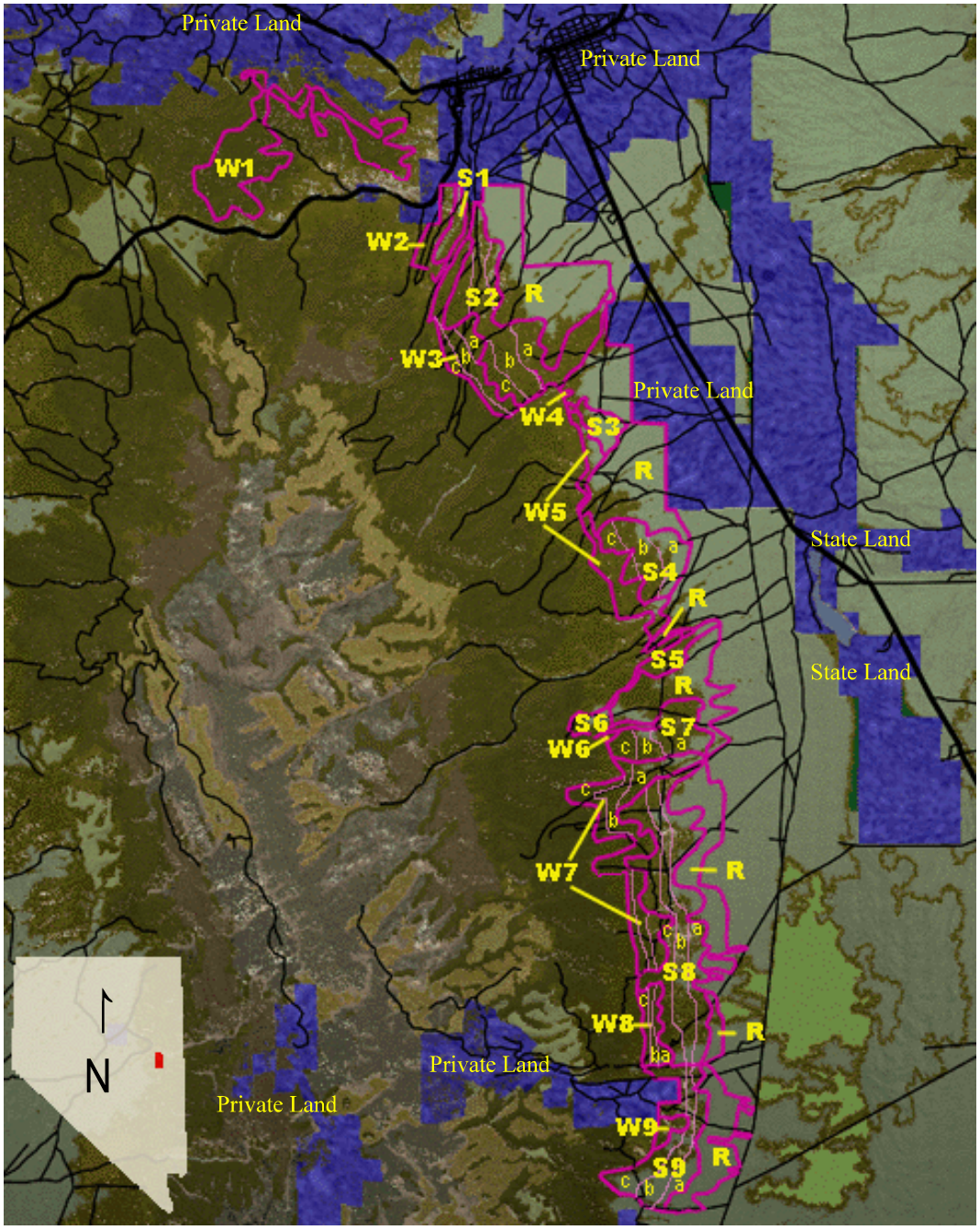

FIGURE 1 Proposed Treatment Locations and Treatment Types for Ely Urban Interface Project (Table 1 contains the tree density information for R - rangeland, S - transition/savanna and W - woodland area.)

TABLE 1 Vegetative Prescriptions Reflect Average Tree Densities for the Proposed Treatment Areas Shown in Figure 1 (Within treatment areas for Transition/Savanna and Woodland, patches and linear sets of trees would be maintained to achieve a desired landscape mosaic.)

Transition/Savanna (3,715 acres) Approximate age of trees to be treated: 5-200 years*		**Woodland (2,415 acres)** Approximate age of trees to be treated: 30-250 years**		**Rangeland (3,270 acres)** Approximate age of trees to be treated: 5-50 years***	
Treatment Area	Trees per Acre	Treatment Area	Trees per Acre	Treatment Area	Trees per Acre
S1	5-10	W1	25-30	R	5
$S2_a$	5				
$S2_b$	5-10	W2	25-30		
$S2_c$	10-20				
		$W3_a$	20-25		
S3	5-10	$W3_b$	25-30		
		$W3_c$	30-60		
$S4_a$	5				
$S4_b$	5-10	W4	20-25		
$S4_c$	10-20				
S5	5-10	W5	25-30		
S6	5-10	W6	20-25		
$S7_a$	5	$W7_a$	20-25		
$S7_b$	5-10	$W7_b$	25-30		
$S7_c$	10-20	$W7_c$	30-60		
$S8_a$	5	$W8_a$	20-25		
$S8_b$	5-10	$W8_b$	25-30		
$S8_c$	10-20	$W8_c$	30-60		
$S9_a$	5				
$S9_b$	5-10	W9	25-30		
$S9_c$	10-20				

* The majority of trees within the transition/savanna zone are less than 80 years.
** The majority of trees within the woodland zone are over 150 years.
*** The majority of trees within the rangeland zone are less than 30 years.

The ecosystems of eastern Nevada are dynamic; they are in a constant state of change. Absence of proactive management does not mean that conditions will stay the same; they will change over time. The changes that would occur under a "no action" scenario would not be desirable.

1.1 BACKGROUND

Wildland fires have impacted the development and succession of vegetation communities in the eastern Nevada landscape. Both cool understory and less frequent canopy fires provided a dynamic mechanism that helped produce a landscape mosaic of fire-adapted range, transition/savanna, and woodland ecosystems. For the last 14,000 years, the environment has been continuously occupied by humans who have affected the landscape since early prehistoric time. Evidence of these events are still visible across the landscape. Historical data indicate that landscape burning was widespread and essential to Native Americans' way of life. Some general reasons for burning the landscape included management of dense stands to facilitate travel, stimulating growth of more desirable grasses and shrubs, improving hunting and food gathering, and maintaining medicinal and tobacco plants. Other purposes would include gathering crickets, jackrabbits, and rats, clearing campsites, a means of communication, cleanup of refuse scatter, and driving antelope (Steward 1941).

In a more recent historical prospective, a primary factor for vegetation change appears to be the introduction of domestic livestock grazing and the active suppression of wildland fire, which have resulted in a gradual change in the composition and structure of plant communities. Domestic livestock grazing selectively reduced herbaceous plant species and allowed increased survival and reproduction of woody plants, such as pinyon and juniper. The continued suppression of wildland fire contributed to increased accumulation and aerial extent of both live and dead woody biomass.

The current eastern Nevada landscape reflects the human influence of grazing and fire suppression, as evidenced by the dense stands of juniper or pinyon and juniper found along the lower elevations and drainages of mountain ranges. These dense pinyon and juniper plant communities now provide an extensive and continuous fuel source for large, hot fires. Increased hazardous fuel loadings within these large closed pinyon and juniper areas represent a significant fire threat to adjacent residential development.

Soils on fans are generally sandy loams derived from alluvium that originates from predominantly volcanic sources. Soils located along the edges of fan piedmonts are typically very shallow due to the presence of a duripan. On fan piedmonts, soils are shallow to moderately deep to a root restrictive layer. Remaining project areas contain deep to very deep soils. Erosion potential ranges from slight to severe and is primarily a function of slope conditions and current vegetation cover. Erosional processes are evident in areas where pinyon and juniper woodlands dominate and become more severe under closed canopy conditions located on steeper slopes.

A number of dirt roads transect the project area and lead to private holdings, mines, scenic views, and trail heads. The area is lightly used for hiking, gathering pinyon nuts, hunting, off-highway vehicles (OHVs), camping, wood cutting, and wildlife viewing.

The vegetation in the project area is primarily pinyon and juniper species that have expanded into sagebrush communities. This increase was attributed to a combination of fire suppression, grazing, and climate change. The current fuel load derived from pinyon and juniper biomass combined with the horizontal connectivity provided by the dense canopy cover has increased the potential for catastrophic fires that can be started by lightning strikes or human causes.

The project area contains populations of elk and mule deer, numerous rodents, and birds. Domestic livestock grazing occurs on the project area. The current large-scale coverage of dense stands of pinyon and juniper has greatly reduced potential forage production for wildlife and domestic livestock

1.2 NEED FOR THE PROPOSAL

The current hazardous fuel loadings on BLM and USFS administered lands near Ely, Nevada, require timely management actions to improve and protect public health and safety by reducing the fire threat and restoring ecological health to the proposed project area. Homes in the south and west sides of Ely could be at risk from high intensity and fast moving fires. Secondarily, some homes are threatened from flooding which would follow large stand replacing fires. The general vicinity of Ely experiences fire activity every year. When conditions favor burning, fires can travel rapidly across the landscape. Examples within sixty miles proximity to the Ely Urban Interface include the Heusser Fire (729 acres) in 2001 and the Cherry Fire (8,200 acres) in 2000 and the Mule Fire (16,900 acres) in 1996. The Mule Fire covered approximately 14 miles in two days. Figure 2 shows the Mule Fire in relation to the project area to demonstrate the potential magnitude of a large fire.

Due to heavy buildup of fuels, firefighters and the public are at risk from possible fires. Although this project will not prevent all fires in the area, the fire intensities would be reduced, allowing firefighters to control them in a more safe environment. By reducing fire size and intensity, the risk of setting up a burn/reburn cycle caused by increased invasive species like cheatgrass would be lessened.

1.3 RELATIONSHIP TO PLANNING

The proposal is in conformance with the Egan Resource Management Plan, approved in 1987 and BLM Ely District Fire Management Plan, which was approved on August 4, 1998. This project also complies with the Humboldt National Forest Land and Resource Management Plan forestwide standards and guidelines.

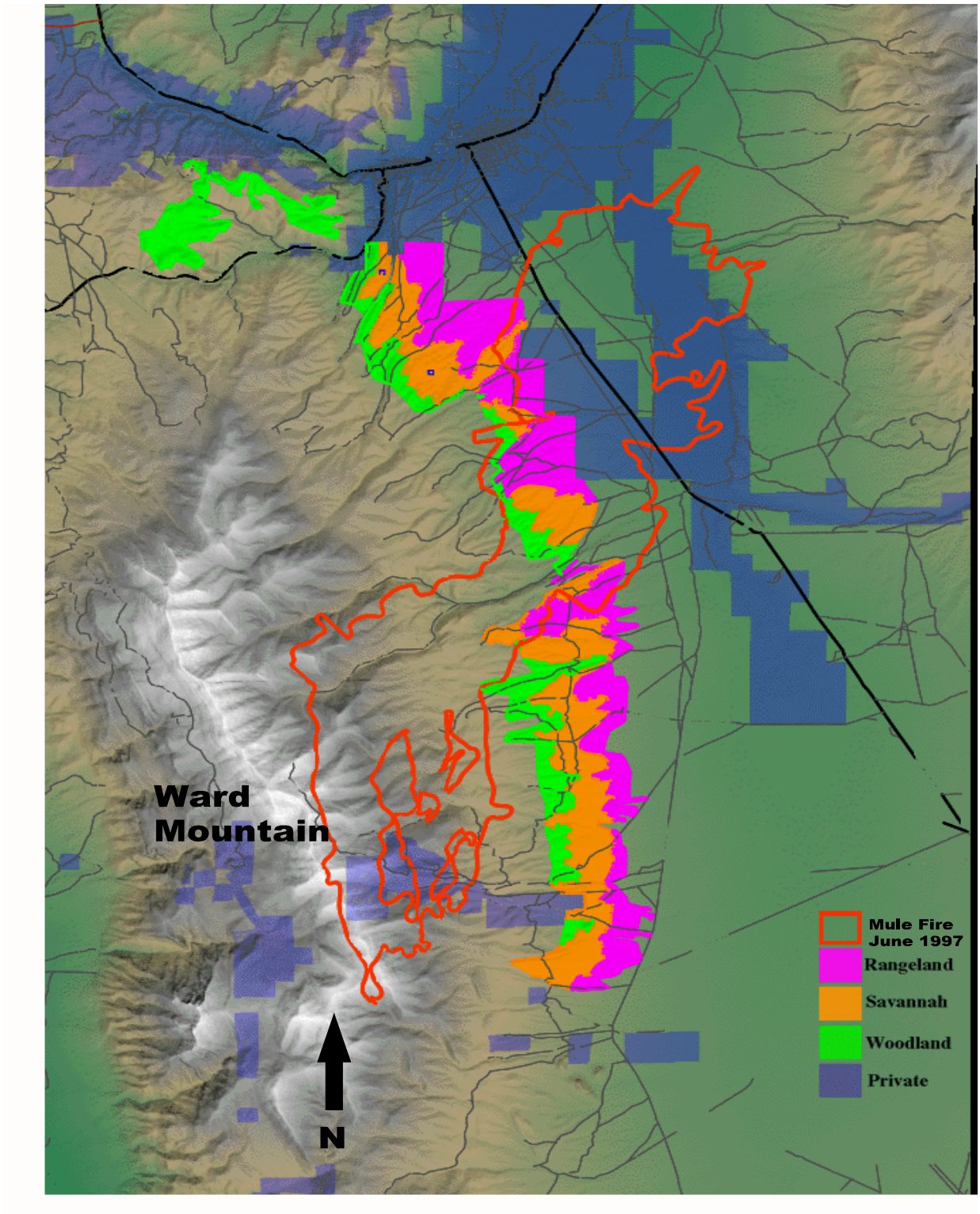

Figure 2 Mule fire superimposed over the Ely Urban Interface Project.

The Humboldt National Forest Plan Environmental Impact Statement considered the potential activities and impacts (including cumulative impacts) that would occur from woodland products management. Woodland products management would comply with the goals, objectives, and direction provided in the Humboldt National Forest Land and Resource Management Plan (Forest Plan). The Forest Plan concluded there were some unavoidable adverse effects. Mitigation measures were adopted into the Forest Plan to reduce those effects. The National Environmental Policy Act (NEPA) and the Forest Plan require a site-specific analysis of the proposed action and any connected actions to determine if there are effects (including cumulative effects) not considered in the Forest Plan EIS, whether the management area description and standards in the Forest Plan can be complied with, and which mitigation measures should be required.

The fuel reduction proposal addresses resource-specific planning activities found in the BLM Copper Flat grazing allotment evaluation, including the following: maintaining existing improvements, controlling pinyon and juniper and sagebrush where feasible, increasing quality and quantity of useable forage, and improving watershed conditions.

The proposed action is consistent with the White Pine County Elk Management Plan (March 1999). The proposed action also is consistent with the 1998 White Pine County Land Use Plan, which states that the county supports the White Pine County Fire Management Plan using the current planning process and the county supports the management of woodlands and forests by ecological condition to establish a diversity of vegetation communities.

The proposed action complies with the BLM Northeastern Great Basin Area Standards and Guidelines (February 12, 1997), specifically:

- Standard 1 (Guidelines 1.1 and 1.2): upland vegetation management practices,

- Standard 3: that habitats exhibit a healthy, productive, and diverse population of native and/or desirable plant species, appropriate to the site characteristics, to provide suitable feed, water, cover and living space for animals species and maintain ecological processes.

1.4 ISSUES

On the basis of internal BLM and USFS discussions and input received during public scoping, the following issues are included in this environmental assessment: human health and safety; visual resource management; cultural and historical values; soil resources; water quality

(drinking and groundwater); vegetation; wildlife; special status species; and invasive and non-native species.

2 DESCRIPTION OF PROPOSED ACTION AND ALTERNATIVES

2.1 PROPOSED ACTION

Using the adaptive management process, the proposed action is to mechanically thin and process pinyon and juniper trees on rangeland, transition/savanna and woodland areas over a 3-year period, depending on available funding. The desired future outcome from implementing the proposed action is the establishment of a landscape mosaic of rangeland vegetation, transition/savanna zones, and open woodland that reduces the threat of wildfire and restores ecological health. Restoration of ecological health would include increases of perennial grasses, shrubs and diversify the age classes of trees within the project area.

Structures are threatened by potential wildfires in the area. Reducing the fuel loading and fuel continuity would reduce the potential of catastrophic fires. By thinning trees in the lower elevations, thousands of acres of woodlands would be protected in the watersheds above the project area, since many of the fires start on the lower benches.

Through the adaptive management process, public involvement would continue during implementation, monitoring, public meetings, field tours and briefing papers. Meeting dates, schedules and updates regarding the project would be posted on the Ely Homepage (www.nv.blm.gov/Ely), in newspapers and radio stations. Information would continue to be sought from the public and universities. Evaluation and appropriate management adjustments would be made to the prescriptions to ensure the plan objectives are met.

Initially, chips would be scattered on the surface to a maximum depth of two inches. Monitoring would determine the effects of leaving the chips on site. Evaluation of the effects would be conducted by the Bureau of Land Management in cooperation with the University of Nevada Reno and Utah State University.

If monitoring determines negative impact results from the chips, the application rate would be modified. If off-site removal becomes warranted, additional environmental analysis would be completed prior to chip removal.

2.1.1 Vegetative Prescriptions

The treatment areas and associated treatment levels (Figure 1) were selected using Natural Resource Conservation Service (NRCS) soil inventories and site observation to determine range, transition, savanna and woodland communities. Based upon these NRCS prescriptions, species diversity and plant density would be maintained or increased. U.S. Forest Service Research Station information, developed by Dr. Robin Taush, was also utilized to determine prescriptions within the transition/savanna and woodlands. Table 1 lists the average tree densities proposed for each of the treatment areas shown in Figure 1. Rangeland and transition/savanna treatment areas would be thinned to 5–20 trees per acre, while woodland areas would be thinned to 20–60 trees per acre. As shown in Table 1 and Figure 1, within the rangeland, transition/savanna, and woodland zones, tree densities would increase slightly with elevation to produce a gradual transition between low elevation and higher elevation pinyon and juniper communities.

While Table 1 lists average tree densities required to reduce fuel loadings and the risk of catastrophic fires, the mechanical thinning operation would leave the remaining trees in clumps scattered around the landscape to approximate a naturally occurring mosaic. To achieve the desired vegetation mosaic, the proposed action incorporates the following landscape design components:

- Pinyon and juniper patches (5 to 30 acres in size) would be located at the confluence of any two drainages.

- Pinyon and juniper patches of larger size (40 to 100 acres) would be arranged in the transition/savanna areas in association with linear sets of trees (stringers) and orientated so as to provide a variety of opening sizes ranging from 0.02 to 0.5 mile wide between the variously sized patches and stringers. Optimum locations for larger patches would occur where drainages are closer together in order to encompass a variety of differing exposures within one large patch.

- In rangeland treatment areas that currently contain pinyon and juniper trees, an average of five trees per acre would be left in treatment areas after mechanical thinning and processing.

- On the basis of the number of patches, a 9:1 ratio would be maintained between small-sized and large-sized patches.

- Pockets of untreated woodlands would be maintained at canyon heads within the woodland communities.

- Trees along the north- and south-facing drainages that are woodland sites would be left untreated for aesthetics and to function as wildlife corridors.

- Current estimates indicate that approximately 800 acres of the woodland community would require supplemental seeding.

2.1.2 Mechanical Treatment

Mechanical treatment would consist of cutting of pinyon and juniper trees in accordance with the vegetative prescriptions described in Section 2.1.1 and chipping and spreading the resulting biomass. Specialized equipment (Section 2.1.3) would be used to cut and position trees for chipping and spreading.

2.1.3 Specialized Equipment

Specialized equipment would be used to cut, chip, and spread the pinyon and juniper chips. One or more units of each type of specialized equipment would be used on the project area as a function of the rate at which project work is executed. The specific mix of equipment types would depend on the method used to treat and dispose of individual trees. Examples of specialized equipment types are described in the following sections.

2.1.3.1 Feller-Buncher

Track-mounted (typically) or rubber-tired feller-buncher machines are equipped with a hinged boom fitted with a grapple and a cutting head and are capable of operating on the slope conditions found in the project area. These machines can operate in close quarters and can reach out in all directions to approximately 20 feet to grasp a tree up to 24 inches in diameter, sever it from the stump (all stump heights would be less than dight inches from ground level), and place it in position for further work by other equipment. Feller-bunchers are about 16 feet long, about 13 feet high, and weigh about 65,000 to 70,000 pounds. They exert ground pressures typically less than eight pounds per square inch (PSI).

2.1.3.2 Self-Propelled Whole-Tree Chipper

Self-propelled whole-tree chippers are track-mounted machines with a hinged boom and grapple that can reach out about 18 feet, grasp a felled tree, feed it into the maw of a self-

contained chipper, and discharge the chips directly onto the ground. Self-propelled chippers are about 22 to 28 feet long, about 12 feet high, and weigh about 55,000 to 75,000 pounds. They exert ground pressures of about six PSI. Typically, they follow the feller-buncher operation and work on the severed trees arranged by the feller-buncher machine so as to be easily accessible to the chipping operation.

2.1.4 Conventional Equipment

Lowboy transporters, pickup trucks, and service vehicles may be used on existing roads within the project area. In addition, crew transport vehicles, various hand tools, and small power equipment may be used on the project.

2.1.5 Key Elements in the Method of Operation and Implementation of the Proposed Action

The BLM and USFS would perform mitigative measures to reduce potential adverse impacts from pinyon and juniper mechanical treatments for the Ely Urban Interface Project. A number of these mitigative measures include standard operating procedures normally conducted by each organization as a component of project implementation. Key elements are as follows:

- The treatment areas would be closed to firewood collection during and after project implementation.

- A pre work meeting would be held with operators for each treatment area. The operators would not move to another treatment area until the Contract Officer's Representative (COR) inspects and clears the completed treatment area.

- Treatment areas would be identified with a global positioning system (GPS) recorder and placed into a geographic information system (GIS) database that would be available to the contractor selected to conduct the mechanical treatment. If necessary, some boundaries will be flagged.

- Low impact (less than 13 psi) tracked and/or rubber tired mechanical equipment would be used to fell, chip, and spread tree biomass.

- All vehicles must have approved mufflers, and power equipment and mechanized tractors must have approved spark arresters.

- When using heavy equipment or power tools on the project area, the operator must have a fire extinguisher (three pounds minimum, ABC rated) and a shovel readily accessible.

- The following firefighting equipment must be on site when cutting and chipping operations are being conducted during high or extreme fire conditions: a minimum 50-gallon portable firefighting unit with pump capable of at least 50 psi and 45 gallons per minute (gpm), fitted with at least 100 feet of 1-inch hose and a nozzle capable of both fog and straight stream spray patterns; a firefighting tool cache (e.g., at least five shovels and five axes or Pulaskis); and phone or radio to report fires or accidents.

- No open fires would be permitted.

- As necessary, treatment sites would be rehabilitated to reduce excessive rutting or other signs of damage caused by mechanical equipment.

- Soil-disturbing activities on steep, erodible, unstable slopes (greater than 50% on BLM administered lands and 30% on USFS administered lands) would be avoided to the extent practicable. Mechanical equipment would be excluded during wet soil conditions when ruts from mechanical equipment would exceed 2 inches deep. Mechanical operations would be allowed in areas otherwise prone to erosion (loamy bottoms) during period when the ground is dry, frozen or when snow depth is sufficient to protect soils.

- Treated areas would be monitored for off-road vehicular use. Where necessary to protect resource values, signing, off-highway limitation or closure designations would be implemented.

- On USFS administered lands, the prescription for treatment would have measures included to leave buffers of untreated or more dense canopy along system roads and trails where the potential for increased OHV and new road and trail development might occur.

- USFS road maintenance measures such as water diversion structures, road closures, area closures, rehabilitation of damaged or newly opened roads and limiting contractor access on particular roads would be required on the National Forest.

- A USFS Travel Plan analysis would be completed prior to contract design so that access roads and specifications may be included into the contract in order to address resource concerns.

- Removal or disturbance of mine claim markers and survey monuments would be avoided.

- When necessary, livestock would be herded from the treatment areas.

- Removal of trees would be avoided between May 1 and July 15 to protect nesting birds, particularly Neotropical migrants, unless bird surveys are conducted during the breeding season and prior to site disturbance. Bird surveys would ensure that occupied territories or active nests do not occur within the areas to be treated.

- Trees with visible raptor nests or cavities would be left wherever they occur (rangelands, transition/savannas, and woodlands).

- Dead trees (larger than 12 inches in diameter at stump height) and snags would be left within savanna and woodland areas to benefit wildlife. These would be in addition to the prescription tree stocking rates.

- All appropriate noxious weed prevention measures contained in BLM and USFS documentation would be implemented. To prevent the potential spread of noxious weeds, all equipment must be washed at an approved wash station before entering and before leaving the Ely District. Special attention must be paid to tires, tracks, and undercarriages.

- Native and/or approved non-native plant species would be used in areas requiring reseeding.

- Any necessary refueling, maintenance, and repair of equipment on the project site must occur only in areas designated by the COR.

- Wood chips would be scattered so they would not exceed an average depth of two inches.

- Any fences cut to allow access would be repaired immediately or constructed to restrict livestock movement.

- A Class III cultural resource inventory would be completed before project implementation to identify, record, and evaluate historical resources for their potential eligibility to the *National Register of Historic Places* (NRHP). All resources eligible for the NRHP would be avoided by all mechanical treatments. No destructive measures would be permitted to any eligible or significant cultural resources. During project implementation, eligible resources would be identified with colored flagging tape. All flagging tape would be immediately removed after mechanical treatment was completed around a site. Additional buffer zones to protect eligible cultural resources would be determined by a qualified archeologist.

- A qualified archeologist would delineate eligible cultural sites for avoidance before treatment in a particular area. If at any time during implementation of this mechanical treatment, an unrecorded cultural resource is discovered or identified, treatment work in that location would stop, and a district archeologist would be notified immediately to examine the area. An appropriate treatment would be developed to mitigate potential further impacts.

- The Class III cultural inventory would also identify all post-1950 cultural manifestations, a phenomenon that is not recognized as a cultural resource, on a map with subject descriptions of their locations. Some types of cultural manifestations may need to be cleaned up or removed from their locations before project implementation.

- Some eligible cultural sites may be additionally treated by hand-cutting crews applying a feathering technique to the surrounding vegetation so that site boundaries would not be readily discernible from the mechanical treatment areas.

- All significant historic structure locations would be further reviewed and considered for additional planning and mitigation for prefire suppression activities. Such activities may include hand or smaller mechanical methods for removal of adjacent vegetation around the structures.

- Tribal consultation would be held before project implementation to identify any potential traditional cultural properties that may be present within or adjacent to the project area. Appropriate mitigation measures would be applied in consultation with the archaeologist, State Historical Preservation Officer (SHPO), and affected Native American Tribes. At this time, no traditional cultural properties have been identified.

- In accordance with procedures in BLM Manual Handbook H-8160-1, *General Procedural Guidance for Native American Consultation*, Native American Tribal/Band consultation (e.g., Ely Shoshone, Duckwater Shoshone, and Goshute Confederation) is in progress to determine if traditional or religious areas are known to exist in or near the proposed project area. If such areas are present, the mitigation measures described above would be applied to any such sites, as appropriate.

- Monitoring of plant cover and soil moisture will be conducted to assess the effects of the chips spread onto the soil surface.

2.1.6 Monitoring and Maintenance

The monitoring and maintenance program would involve use of adaptive management as a systematic process for implementing decisions on a continuous basis and to incrementally improve resource management as new technology becomes available and social changes demand. The Great Basin ecosystems in eastern Nevada are dynamic. Because of the nature of these natural systems, adaptive management allows continuous improvement in understanding of these ecosystems. Currently the BLM is working with Utah State University and the University of Nevada Reno to develop monitoring strategies, procedures and inventory. Examples of data to be collected are: impacts to soils and revegetation from chip depths; climate, hydrology relating to increased water flow and visual resource management.

The following paragraphs summarize monitoring activities that the BLM and the USFS would conduct as part of the proposed action to ensure that project treatments and mitigation requirements have accomplished their designated goals:

- A representative from the BLM and/or the USFS would make regular site visits (minimum of daily visits for the first two weeks; subsequent visits as needed through project completion) to check on progress and compliance with specifications during treatments. Any deficiencies noted during these inspections would be corrected at that time.

- On-site monitoring of cultural resources would be conducted by a qualified archeologist during project implementation to ensure that significant resources are not affected by project activities. In addition, several non-eligible resources would be monitored to determine any overall mechanical impacts as relevant documentation for methods of treatment on cultural resources for future projects.

- Long-term monitoring of significant cultural resources would be conducted by a qualified archeologist to determine if there are any indirect environmental adverse effects (e.g., erosion, illegal collecting, vandalism).

- Areas that need to be rehabilitated (e.g., ruts caused by vehicles) would be visited for the first three growing seasons to document the success of the rehabilitation measures and to monitor for weed introductions. All seeded sites would be monitored and spot reseeded as necessary.

- Post-treatment monitoring (e.g., pinyon and juniper expansion and shrub/herbaceous communities development) would be conducted to determine if treatments are accomplishing hazardous fuels reduction goals. This program would include conducting noxious weed inventories in treated areas and appropriate monitoring (e.g., double sampling, line intercept, and cover transects).

- Monitoring of plant cover and soil moisture would be conducted to assess the effects of the chips spread onto the soil surface.

2.2 NO ACTION ALTERNATIVE

Under the no action alternative, the proposed fuel reduction and vegetation manipulation would not take place. A landscape of continuous heavy fuels would continue to expand with a loss of plant diversity. This accumulation of fuels and crown closure would increase the potential for large stand replacing crown fires. With a reduction in native species, cheatgrass and weeds may expand into the site setting up a burn/reburn cycle which would threaten the urban interface area for many decades, not only from fires, but from impacts associated with fire to the watershed.

2.3 ALTERNATIVES CONSIDERED BUT ELIMINATED FROM DETAILED ANALYSIS

2.3.1 Biomass Utilization

The economic utilization of tree biomass derived from the cutting and processing of pinyon and juniper trees on the treatment area is not part of this proposed action and will not be considered in this environmental assessment for detailed analysis. There were public comments in the scoping meetings regarding economic use of the

biomass. While subsequent economic use of the biomass could be a legitimate future outcome of this type of project, it is beyond the scope of the current NEPA analysis. If a third-party contacts the BLM or USFS with a request to utilize tree biomass from the proposed treatment area, a separate NEPA analysis would be conducted for the proposal.

2.3.2 Prescribed Fire

A prescribed fire under the current conditions would present a health, safety, and economic risk because of the proximity of homes, buildings, schools, and businesses to the treatment area. In addition, because of the proximity of the Ely population to the treatment area, any such burning could cause unacceptable air quality impacts.

2.3.3 Hand Cutting and Firewood Cutting

Hand cutting would be a very slow process for a projected treatment area of more than 9,000 acres. For example, past work conducted by the Nevada Division of Forestry showed that a crew of 12 individuals could hand-cut and slash two to three acres of pinyon and juniper per day. This removal rate would not meet the need for the proposal to improve public safety in a timely manner. Firewood cutting could lead to the development of an extensive road or two-track network that would be detrimental to restoring ecological health.

2.3.4 Herbicide Use

A project evaluation of the herbicide tebuthiuron was conducted by the Ely Field Office of the BLM for the Mount Wilson area (BLM 1999). While this herbicide could be an effective method to reduce pinyon and juniper expansion on sagebrush rangeland, public scoping and comment indicated general opposition to chemical approaches to vegetation management.

2.3.5 Clear Cutting and Planting Crested Wheatgrass

While this alternative would meet the need of hazardous fuel reduction, the need to restore the ecological health of the vegetation community would not be accomplished by clear cutting and planting of crested wheatgrass on treated areas.

3 AFFECTED ENVIRONMENT

The affected environment is described in the next section (Section 4) as necessary for the reader to understand the impact analysis.

4 ENVIRONMENTAL CONSEQUENCES

4.1 PROPOSED ACTION

4.1.1 Environmental Affects - Proposed Action

The following features and functions would not be affected by the proposed action to reduce hazardous fuel loadings in the project area: wilderness values, wild and scenic rivers, flood plains, wetlands, riparian areas, Paleontological resources, wild horses, areas of critical environmental concern, prime or unique farmlands, hazardous and solid wastes, rangeland management, minerals, social and economic conditions, and environmental justice parameters.

4.1.2 **Affected Environment**

Human Health and Safety

The fire model BEHAVE/FIRE1 Version 4.4 (Fire Behavior Research Work Group 1997) was used to simulate the effects of the proposed action on fire behavior. Model results indicate that a potential fire under worst-case conditions could burn approximately 200 acres. However, with a simulated rate of spread of only 27 chains (each equally 66 feet) per hour (CH/H) and a fire line intensity of 441 Btu/ft/s, it is anticipated that any fires would be very controllable and result in limited impacts to human health or safety.

Additional fugitive (wind-blown) dust would be generated by the vehicles used in the proposed vegetation treatment, primarily vehicles traveling on permanent unpaved roads during the day. Because equipment used in the felling and chipping operations would move at slow speeds over vegetation-covered soils, only small amounts of fugitive dust would be generated. Chips placed on the ground after treatment would reduce wind erosion.

Exhaust emissions would also be produced by the vehicles and motorized equipment. However, these emissions would be of short duration and cause only highly localized, minor impacts. Small, easily controlled natural or prescribed fires that could occur after proposed vegetation treatments would have reduced total smoke emissions (reduced fuels) compared with potentially destructive wildfires that could occur in the absence of vegetative treatments (no-action alternative).

Cultural and Historical Values

It is anticipated that there would be no impacts to eligible cultural and historical resources because of the project design and the mitigation and monitoring which are part of the proposed action.

Soil Resources

The operation of mechanized equipment would cause temporary soil compression and short-term impacts to microbiotic crusts of affected soils (BLM 1999). As vehicles maneuver over the project area, minor disturbances to the soil surface may occur. However, the proposed project design would avoid deep or large-scale soil dislocations. In addition, operations on steeper slopes (50% for BLM and 30% for USFS) or other areas prone to potentially high erosion rates would only occur during winter months so as to avoid excessive soil disturbance. The effects of minor soil disturbance would be temporary and would be expected to result in negligible increases in erosion rates on the project area.

Soil compaction can result in the alteration of soil structure, which in turn, can result in a decrease in the rate of precipitation infiltration and an increase in runoff. However, soil compaction by the types of equipment proposed for tree removal would be expected to be slight because of the low pressure exerted on the soil surface (<13 psi). In addition, vehicle operation on soft soils, such as those that occur under saturated conditions, would be avoided. The growth of herbaceous vegetation and accumulation of leaf litter would increase infiltration and reduce runoff on treatment areas. Subsequent expansion and contraction of the soil, due to cyclical changes in temperature and soil moisture, would reduce the effects of compaction within several years (Thurow and Hester 1997). The placing of chips on the surface of the soil would not alter current soil nitrogen-to-carbon ratios.

Cryptogamic soil crusts would be disturbed by operation of mechanized equipment. However, disturbance of surface soils under the proposed action is expected

to be minor because of the low ground pressure of mechanized equipment proposed for tree removal. Thus, direct impacts to cryptogamic crusts are expected to be minor. Crusts are known to recover and become reestablished following disturbances, including heavy grazing (Beymer and Klopatek1992). Therefore, effects of the proposed action would be temporary, and crusts would be expected to recover over a three to five year period.

Wood chips are commonly used to facilitate the reestablishment of plant communities. They are applied to the soil surface to stabilize the soil surface and minimize soil loss to wind and water erosion (Munshower 1994). Wood chips also improve soil moisture conditions by increasing infiltration and reducing evaporation, which enhances seed germination and establishment, as well as the growth and reproduction of existing plants. Applications of wood chips to a depth of 2 inches have been found not to have adverse effects on plant communities (Redente 2001, personal communication).

The reduction of the pinyon and juniper canopy cover, coupled with increases in ground cover vegetation and water infiltration, would reduce soil erosion while enhancing long-term soil stability. Limited uncontrolled or prescribed fires that could occur following the proposed treatment could cause a short-term decline in cryptogamic crusts. However, a low-intensity fire would not remove the entire crust structure. Therefore, the functions of nitrogen fixation, soil stability, and improved plant health performed by this microbiotic soil community would continue to some extent, and restoration of the microbiotic crusts would occur within 5 years or less. The mosaic landscape pattern that would result from the proposed treatment would limit fire effects to small areas and provide nearby sources of inoculums that would enhance the recovery process of the cryptogamic crust community.

Water Quality (Drinking/Groundwater)

By increasing herbaceous cover, there would be less potential for flooding because of the diminished potential for stand replacing fires. This could decrease the potential cause of flooding to homes located in the southern and southwestern portions of the Ely community. This could also help prevent sediment loading in Comins Lake.

During project implementation, and for a short time afterward, some disruption in surface runoff over localized areas could occur from chipping of pinyon and juniper. The potential for such impacts would persist in very local areas until a vegetative cover is reestablished. The wood chips would mitigate these impacts to some extent by protecting the soil from raindrop impacts and by providing obstacles to overland flow.

In the long-term, the reduction in pinyon and juniper expansion, coupled with an increase in the herbaceous vegetative cover, would reduce soil erosion.

Groundwater depths range from 400 to more than 600 ft in the project area (BLM 1999). Therefore, the proposed action would cause no long-term impacts to groundwater and drinking water quality.

Vegetation

The movement of mechanized equipment in the project area may damage native vegetation in the path of the equipment. However, because of the low ground pressures that would be exerted by the proposed equipment (<13 psi), impacts to herbaceous species would be negligible. Soil compaction, rut formation, and damage to stems and roots can reduce plant growth (Gjedtjernet 1995). Most shrubs, grasses and forbs trampled during pinyon and juniper chipping treatments should recover because root systems would not be disturbed by the low-impact mechanized equipment. Shrubs that do not sprout from root systems could be killed if severally damaged by the mechanized equipment. Also, some trees and shrubs would be removed where needed to facilitate the passage of cutting/chipping equipment.

The reduced pinyon and juniper canopy cover would result in an increase in the density and vigor of shrubs, grasses, and forbs (e.g., stimulate the reestablishment of early-to-mid successional species within the pinyon and juniper successional process) (Everett and Sharrow 1983; BLM 2000a). Grass and shrub communities can develop soon after tree removal if the pinyon and juniper canopy has not displaced the understory of perennial grasses and herbaceous species. Otherwise, supplemental seeding may be required, in which case a perennial grass/forb community should develop within 2 years (Goodrich 1999). An increase in these plants could result in conditions that would allow natural or prescribed fires to be reintroduced into the ecosystem as a means of maintaining vegetation health and diversity.

Wood chips are commonly used to facilitate the reestablishment of plant communities. Wood chips also improve soil moisture conditions by increasing infiltration and reducing evaporation, which enhances seed germination and establishment, as well as the growth and reproduction of existing plants. Applications of wood chips to a depth of 2 inches have been found not to have adverse effects on plant communities (Redente 2001, personal communication).

Fire Management

In the summer, relative humidity can drop to single digits, temperatures rise and afternoon winds increase, creating favorable conditions for wildfire. These conditions support higher levels of fire intensity and behavior. Native vegetation is generally more resistant to fire because it has evolved within a natural fire regime. Some of these influencing factors include: climate, fire frequency, species resistance and response to fire.

Under the proposed action, fire intensities and rates of spread would be reduced in the transition/savanna and woodland zones. The project design would result in fires dropping from the tree canopy to the ground because a continuous canopy would no longer exist. Fires would spread by perennial grasses, forbs and shrubs, rather than trees. These fuel types burn at lower intensity, resulting in easier fire control. Fine fuels (grass and forbs) are greatly influenced by relative humidity; they absorb or give off moisture more rapidly than trees. The moisture of extinction (the point at which a fire will begin to smolder) for pinyon and juniper trees is approximately 25%; the moisture of extinction for grass and forbs is approximately 15%.

Spreading wood chips would create a viable fuel source in the treated areas having volumes greater than three tons per acre. The chips could remain for several decades, depending upon the decomposition processes within the treatment areas. These chips could burn with visible flames, creep or smolder under conditions similar to the burning of mulch or duff. Fire affects could vary, depending upon burning conditions (dead fuel moisture within the chips), which could affect the understory vegetation. If the dead fuel moisture is high, there could be decreased mortality of perennial grass, forbs and shrubs. If the dead fuel moisture is low, the intensity and duration of the fire could increase mortality.

Fires would still occur. They would be easier to control with the lower fuel loading and open pinyon and juniper canopies. The vegetation change resulting from this proposal would alter fire intensity, and subsequently, the fire suppression techniques required. Indirect attack methods required for high intensity fires (burn outs and natural and man-made barriers) would be replaced by direct attack (fighting fires next to the flames). Firefighter and public safety would be increased due to the lower intensity ground fires.

Wildlife

During treatment operations, wildlife would be displaced because of noise, visual disturbance, and loss of some habitat for resident species. However, the effects of this impact would be minimal because wildlife would move into adjacent, unaffected areas.

In general, impacts to wildlife resources from such projects can be numerous and varied, but generally take the form of short-term displacement during the project implementation phase, followed by a brief period of essentially no impacts or return to the status quo, and then followed by long-term improvements in habitat condition and quality. Discussions of wildlife impacts are most easily understood when grouped by species or group, and thus are so presented below.

Big Game – Big games species present in the project area include elk (*Cervus elaphus*) and mule deer (*Odocoileus hemionus*). Elk have been established in the South Egan range since the 1980s, and two augmentations have occurred in this range since then (White Pine CRM Steering Committee 1999). Elk use in the project area is year-round. Elk utilize the habitat in the project area for foraging, hiding cover, and thermal cover. Between 40 and 60 elk use the project area, but higher numbers may occur for short periods at various times of the year. Mule deer, like elk, use the area year-round, with between 20 and 60 individuals generally in the area (Baughman 2001).

Trends for mule deer use have remained nearly static throughout the project area as the tree component has increased and competition with desirable shrub species used as browse has accelerated. Mule deer use is also limited by the lack of available water.

While the proposed action is designed primarily for the reduction in hazardous fuels in the areas adjacent to residential developments, the treatments proposed would also improve the quality of habitat for both elk and mule deer. These improvements would occur as a result of modifications in the distribution and arrangement of foraging and cover areas. Foraging areas between 375 and 800 feet wide with adjoining areas of thick cover between 600 and 1200 feet wide constitute optimum forage/cover arrangements for mule deer and elk. Cover areas of smaller size are also acceptable, provided they are worked in over the landscape and occur together with larger areas (BLM 1986; Thomas et al. 1976; Black et al. 1976; Thomas and Toweill 1982).

The proposed treatment would contribute to the improved quality of the habitat by increasing the composition of key elk and mule deer forage species, which are presently declining over the majority of the project area. Studies in sagebrush/grass

communities have indicated that as much as 82% of forage production may be lost when pinyon and juniper canopy cover exceeds 50% (Everett and Sharrow 1983). The proposed action would generally reduce the composition of pinyon and juniper trees in some areas and push back the tree line in an irregular pattern in other areas.

Because the primary goal of the proposed action is hazardous fuels reduction, optimum big game habitat conditions would not be selected in most areas because of the compromises in fire safety that would result. However, the proposed treatments would improve the arrangement of habitat types and increase forage quality above current conditions and would reverse trends toward declining habitat condition, which would persist under the no action alternative.

Small Game – A number of small game species occur in the project area. Impacts to small game from the proposed action would be positive. Cover close to the ground would be increased by removal of encroaching trees, and forage would increase because of the release of shrubs and grasses from tree competition (see Commons et al. 1999; Willis and Miller 1999). The incorporation of leave areas in the form of patches and stringers would continue to provide habitat for any small game favoring such sites.

Migratory Birds – As a result of issuance of Executive Order 13186, federal agencies must ensure that environmental analyses of federal actions required by the NEPA or other environmental review processes evaluate the effects of actions and agency plans on migratory birds, with emphasis on species of concern.

Several migratory birds that occur in the project area may be affected by the proposed action.[1] Pinyon jays are common in pinyon and juniper woodlands. They often occur in flocks numbering in the hundreds and nest in loose colonies. Their numbers have declined despite pinyon and juniper expansion, suggesting that overstocking of trees may result in lower cone production. The gray vireo prefers open pinyon and juniper woodlands with sparse to open canopies. The ferruginous hawk prefers to nest in scattered juniper trees at the boundary of pinyon and juniper woodlands and desert shrub communities. Most active nests are located in isolated living junipers with canopy closure < 1% and under stories dominated by sagebrush with canopy covers of 40 to 80%. They also nest in pinyon and dead juniper; they forage over open sagebrush because of the increased prey base available there. The gray flycatcher is a facultative riparian species and is found in pinyon and juniper woodlands with sagebrush or bitterbrush under stories. Increased densities of the gray flycatcher are often associated with an increased herbaceous component in the understory. The juniper titmouse is a cavity nester that prefers dense foliage and closed canopies, with thin under

[1] The information in this paragraph is derived primarily from Neel (1999).

stories and ground cover preferred for some feeding activities. The mountain bluebird is a cavity nester that prefers habitats similar to those preferred by the ferruginous hawk. It is drawn to areas with open canopies and early successional regrowth. Virginia's warbler is common in mountain brushlands. The black-throated gray warbler favors fairly dense, mature stands of pinyon and junipers. Scott's oriole has a very low incidence in Nevada. Little information exists on its use of pinyon and juniper woodlands. It is primarily a species of successional brushlands.

The proposed action will not have any negative effects on any of the identified migratory bird species of concern for pinyon and juniper woodlands. The proposed action would implement a combination of three treatments within the project area. The three treatments would be arranged so as to accommodate nearly every habitat parameter identified in the Nevada Partners in Flight Bird Conservation Plan. For species such as the pinyon jay, larger patches would not be maintained within the project area, but treatments would encourage the increased production of cones and adjacent areas of woodlands would be left unaltered.

Migratory birds utilizing sagebrush communities would experience increases in habitat condition and quality following implementation of the proposed action. Some inactive nests in sagebrush and other shrubs may be destroyed as a result of trampling by equipment. The release of the shrubs and grasses in these communities following removal or reduction in trees would enhance existing plants and existing seed banks would be allowed to germinate and fill the spaces similar to what was documented in the Forest Service study plot located adjacent to the project area.

Reductions in predation on various wildlife species in the project area should be realized with a reduction in the number and distribution of perch trees in some areas and the increases in near-ground cover over the entire area. This impact would be a long-term benefit.

Special Status Species (Threatened, Endangered, and Sensitive Species) – A Section 7 consultation was completed with the U.S. Fish and Wildlife Service. The bald eagle was identified as a threatened species which could utilize habitat within the project area. There are no other identified federally threatened, endangered species in the project area.

The western sage grouse, both a Nevada BLM and Regional Forester's sensitive species could occur in the area. This species has been petitioned for listing under the Endangered Species Act. There are no known sage grouse strutting grounds within the project area, but suitable strutting, nesting, and loafing habitat does exist in the project area with respect to shrub cover. Strutting habitat is usually open, black sagebrush or

white sagebrush stands. Nesting and loafing habitat conditions occur in the major dry washes and in a narrow fringe along the upper elevation areas of the project area and adjacent forest service range. Near-to-ground cover is limiting over most of these areas, both as a result of past land use practices and the encroachment of pinyon and juniper into the sites; consequently, these habitats are currently unusable. In addition to limitations in certain habitat condition parameters, the abundance of perching sites (trees) for raptors, which prey on chicks and adults, further decreases the condition of the available habitat.

Thinning trees as a result of implementing the proposed action would result in reduced threat of predation from raptors. Additionally, understory vegetation, including crucial near-to-ground cover, would be expected to increase. Thus, use by sage grouse in some areas could increase; however, brood rearing habitat would remain limiting.

The recently established Steptoe Valley Management Area (east of the project area) contains one known sage grouse lek. Rehabilitation of extensive wetland and upland meadow complexes in this property could increase the quality and availability of suitable brood rearing habitats on this property and allow for increases in total sage grouse numbers in the area.

Researchers have studied the effects of pinyon and juniper management on sage grouse (Commons et al. 1999). In that study, it was found that numbers of male sage grouse using established leks within 100 meters of live trees were depressed because of increased raptor presence and associated predation. Further, the removal of pinyon and juniper trees (in association with brush-beating to reduce the height of mountain big sagebrush) resulted in doubling the numbers of male sage grouse counted on established leks within the treatment area. It was further concluded that clearing of younger age-classes of trees may increase the survival, productivity, and recruitment of sage grouse in fragmented habitats.

Visual Resource Management

The project area has been classified as a visual resource management (VRM) Class III. The management objective of VRM Class III is to partially retain the existing character of the landscape. The level of impact to VRM Class III areas can be moderate. Management activities can also be moderate. Management activities may attract attention but should not dominate the view of the casual observe. Changes should repeat the basic elements of form, line, color, and texture found in the predominant natural features of the characteristic landscape. In VRM Class III, contrasts to the basic elements are evident but should remain subordinate to the existing landscape.

On the basis of the VRM Class III management criteria, there would be minor impacts to visual resources. To visualize the landscape changes that are likely to occur from the proposed action, Figure 3 shows the current (A) and desired future condition (B) of part of the Ely Urban Interface Project. It does not represent a deviation from the VRM Class III management objectives. Additional computer visualizations of the project area can be obtained from the BLM Ely Field Office.

Pinyon and juniper treatments would add diversity to the landscape and vegetation composition. The creation of natural fire breaks that would result from the pinyon and juniper treatments would contain natural or prescribed fires within acceptable boundaries. A fire would likely create a mosaic visual effect upon the landscape. The proposed project would be designed to minimize visual impacts by using techniques such as feathering and irregular cutting to mimic the natural form, line, and texture of the existing landscape.

Recreation and Access

Increases in noise and dust from tree cutting and chipping operations could cause a temporary disturbance to recreationists. Implementation of the proposed action could increase ease of access by OHVs. Mitigation and monitoring (see Sections 2.1.5 and 2.1.6) should limit the development of new two-track roads or trails after the treatment is completed. Vegetation enhancements that would improve habitat conditions for wildlife would improve wildlife viewing and hunting opportunities (BLM 1999). The project area would be closed to firewood collection during and after implementation of the proposed action.

Road systems within the project area would have increased use as a result of daily equipment use. Impacts are anticipated to be of short duration i.e. reclamation would occur after treatment. Potential exists for OHV damage within treated sites, despite efforts to control indiscriminate use.

Facilitated access would result from the thinning operation. Such use would result in the development of non-system roads or trails within portions of the treatment area. The magnitude of potential impact would be directly proportional to the site's proximity to populated areas.

A

B

FIGURE 3 - Visualization of the Current (A) and Desired Future Conditions (B) in a Portion of the Ely Urban Interface Project

Invasive, Non-Native Species (Including Noxious Weeds)

The potential for transporting weed seeds into the treatment areas cannot be eliminated completely even with implementation of mitigative measures. A noxious weed risk assessment has been completed (Appendix A). The potential for the introduction and establishment of noxious weeds and invasive species could increase in treatment areas that have a dense canopy cover with little or no ground cover. Portions of the treatment area would need to be seeded following cutting and chipping. Establishment of noxious and invasive weeds could potentially increase the flammability of the area and decrease native species development. Noxious weed control measures which are part of the proposed action would help mitigate this impact.

Native American Religious Concerns

The "Ely Shoshone consider Ward Mountain as being a sacred area, for religious and cultural purposes." (Stanton, 2001) Short-term, localized impacts to traditional values and use areas would result because certain plants (e.g., pinyon and juniper trees) used by Native Americans would be cut as part of the proposed treatment. Potentially, other traditional uses or values i.e. medicinal plants could increase.

4.2 NO ACTION ALTERNATIVE

The following features and functions would not be affected by the no action alternative: wilderness values, wild and scenic rivers, flood plains, wetlands, riparian areas, wild horses, areas of critical environmental concern, prime or unique farmlands, hazardous and solid wastes, rangeland management, minerals, and environmental justice parameters.

Public Health and Safety

The fire model BEHAVE/FIRE1 Version 4.4 (Fire Behavior Research Work Group 1997) was used to simulate the effects of the no action alternative on fire behavior. Model results indicate that a potential fire under worst-case conditions could result in a catastrophic event capable of burning over 56,000 acres. In addition, with a simulated rate of spread of 457 CH/H and a fire line intensity of 26,399 Btu/ft/s, it is anticipated that a worst-case fire would be extremely difficult to control and would result in substantial risks to human health and safety.

The air quality impacts described under the proposed action alternative would not occur. However, a large catastrophic fire could reduce air quality and release harmful particulate emissions from wildfire smoke (BLM 2000a). The quantity and duration of smoke emissions would be greater than for natural or prescribed fires under the proposed action because of greater fire intensity associated with higher fuel loading.

Private houses and dwellings would be at risk from a catastrophic fire, especially dwellings located north and northwest of the project area (because of the prevailing winds from the south).

Cultural and Historical Value

It is well documented that catastrophic fires damage or destroy archeological and historic resources. Ground-disturbing fire suppression activities could also inadvertently damage or destroy resources because their locations have not been recorded or identified. Removal of vegetation by a catastrophic fire could expose cultural resources, particularly organic materials (e.g., bone, charcoal, shells, and basketry), to increased water and wind damage. Artifacts and other features significant to interpretation of a site may become exposed, increasing their susceptibility to being illegally collected (BLM 2000c).

Soil Resources

Under the no action alternative, there would be no impact to soils (e.g., compaction) from cutting and chipping equipment, and no soil moisture enhancements or soil protection from erosion resulting from placing wood chips on the soil.

In the event of a catastrophic fire, there would be soil disturbances, such as impacts to cryptogamic crusts and soil erosion. Nevertheless, this microbiotic community would become reestablished to their pre-fire composition and function within five years.

Water Quality (Drinking/Groundwater)

No impacts to drinking water or groundwater would be expected from the no action alternative. In the event of a catastrophic fire, surface runoff would increase because of the loss of vegetative cover and surface litter. This increase in surface run-off could cause flooding to homes located in the southern and southwestern portions of the

Ely community. This could also increase the sediment loading in Comins Lake. This increase runoff could cause greater peak stream flows. A high intensity thunderstorm or rapid snow-melt could cause water quality deterioration in the burned area (e.g., reduced oxygen levels and increased sediment loads). These conditions could exist for up to 2 years following a fire (BLM 2000b).

Vegetation

Under the no action alternative, no vegetative management would be implemented. The pinyon and juniper canopy would continue to close, displacing shrubs, forbs, and grasses (BLM 2000a). This process would continue to decrease forage production for a number of bird and small mammal species and for ungulates such as elk and mule deer. Generally, bird and small mammal populations in the project area would gradually shift toward those species that prefer heavily wooded areas.

Surface fuels (e.g., needles and branches) would continue to accumulate on the forest floor. Also, stress associated with increasing density of forest stands could make trees more susceptible to mortality from insect infestations and disease. This condition would increase the fire hazard, making the area more susceptible to a stand replacing wildfire.

Fire Management

In the summer, relative humidity can drop to single digits, temperatures rise and afternoon winds increase, creating favorable conditions for wildfire. These conditions support higher levels of fire intensity and behavior.

Under the no action alternative, fire intensities and rates of spread would increase within the project area because of continuing accumulations of fuel loads. As the pinyon and juniper density expands, crown closure would continue expanding the potential for crown fires.

Fires would still occur. They would be more difficult to control with the increase in fuel loading. Running crown fires are more unpredictable than surface fires. To ensure firefighter safety, indirect attack methods would be utilized. There would be an increased threat to public health and property due to larger, more intense fires (crown verses ground fires). If confronted with an either or situation, structures would be lost before firefighter safety would be compromised.

Higher intensity fires can cause native vegetation to be replaced by invasive weeds such as cheatgrass. The normal fire return intervals for species common to the area are presented in Table 2.

TABLE 2 Normal Fire Return Intervals - The average number of years between fires to maintain vegetation communities.

Vegetation Communities	Normal Fire Return Interval (years)
Wyoming Big Sagebrush	25-100
Black Sagebrush	100-200
Pinyon-Juniper	10-30 (understory fires) 100-300 (stand replacing fires)

If cheatgrass were to dominate the area, the normal fire return interval would likely become one to five years.

Wildlife

Big Game – Big game use of the area is presently following a trend of either slowly increasing in population numbers (as with elk) or being nearly static to decreasing (as with mule deer). Thresholds for the carrying capacity for big game in the project area are not known, but are accepted as being regulated by both limited water and forage. Under the no action alternative, the population of elk would be expected to continue to slowly increase. These increases would decline as continued competition from closing pinyon and juniper canopies begin to influence grass composition and abundance. Mule deer use would be expected to also continue its trend, with long-term responses similar to those of elk. The potential for a catastrophic fire would increase, leading to the possibility of major declines in both elk and mule deer habitat conditions. The distribution and association of hiding cover and foraging areas, which are already at less than optimum conditions, would further deteriorate.

Small Game – Small game numbers and species types would remain relatively unchanged in areas where trees already dominate the vegetation community. With decreasing near-to-ground cover and increasing tree canopy density, areas currently supporting species adapted to sagebrush environments would gradually be displaced and species mixes would shift toward those typical associated with heavily wooded areas. Catastrophic fire presents a serious risk to community structure and habitat conditions that

are unsuitable to several species of small game and nongame species within the project area.

Migratory Birds – Migratory bird use would follow much of the same course as use by big and small game with slowly increasing densities of trees. As for small and big game, the risk of a catastrophic fire and the associated chances of dramatic changes in environmental conditions would increase. Without the wildfire component, migratory bird use would be expected to slowly shift to outlying locations within the project area from species requiring sagebrush communities to those requiring woodlands. The forage base for both groups of species (woodlands and sagebrush) would also slowly shift. The reduction in habitat diversity corresponds to a commensurate decrease in insect diversity and, therefore, in migratory bird diversity.

Special Status Species (Threatened, Endangered, and Sensitive Species) – There would be no effect upon the bald eagle (threatened species). Under the no action alternative, there would be no change in the current sage grouse use of the project area. Potential improvements in sage grouse nesting and brood-rearing habitat in the nearby Steptoe Valley Wildlife Management Area would be tempered by a lack of a corresponding increase in strutting, nesting, and loafing habitat conditions within the project area.

Visual Resource Management

Under the no action alternative, no visual impacts would occur. A catastrophic fire event would result in altered landscape color and remain largely noticeable to the casual observer for several years or longer.

Recreation and Access

Under the no action alternative, no impacts to recreational opportunities would occur. A catastrophic fire would remove the visual screen provided by tree cover, making it more difficult for those wanting a remote recreation experience to avoid the sights, sounds, and evidence of other visitors. Recreational areas not directly affected by fire could be affected for a period of time by smoke.

By not implementing the proposed action the rate of new road or trail creation is not expected to change. Firewood collection would be allowed to continue on BLM administered lands.

Invasive, Non-Native Species (Including Noxious Weeds)

Noxious and invasive species would continue to remain more or less stable in terms of current distribution and abundance until a catastrophic fire or some other form of disturbance removes the existing vegetation. Without human intervention, dramatic increases in cheatgrass and other invasive non-native species could occur following a catastrophic fire, particularly where the pinyon and juniper canopy has displaced the understory and a seed bank for grasses and forbs has been depleted (Goodrich 1999).

Native American Religious Concerns

There would be no impacts to Native American religious concerns under the no action alternative. Traditional Native American values may be impacted by a catastrophic fire.

4.3 CUMULATIVE IMPACTS

According to the 1994 BLM handbook *Guidelines For Assessing and Documenting Cumulative Impacts*, the amount of analysis that is necessary can be greatly reduced by limiting cumulative analysis to those issues and resource values identified during scoping that are of major importance. Accordingly, the resource values of major importance that are analyzed are (1) public health and safety, and (2) visual changes in the plan area.

4.3.1 Public Health and Safety

Past Actions

Past land use practices have altered vegetation communities within the Ely District. Native Americans utilized woodland resources for food, wood, and other essentials. They also used fire for various purposes, including burning off lower benches of pinyon and juniper. Large fires often resulted from these set fires. Later, woodland products were extensively harvested throughout eastern Nevada in the late 19th century for the mining industry. Much of the wood was used to make charcoal, which was used in the gold milling process. Trees have also been harvested for fuel, fences, and Christmas trees. Following the bulk of woodland removal, intensive livestock grazing (centering between 1900 and 1920) was blamed for removal of competing understory layers. The lack of understory facilitated the germination and establishment of pinyon and juniper to greater

densities than are described within the Natural Resource Conservation Service range and woodland site descriptions.

Beginning in the 1930s, the federal government started managing public lands and taking a more active role in the management of livestock. The BLM increased emphasis on suppressing fires that further altered fire regimes. As a consequence, vegetation cover and composition changed. Shrub and tree densities increased, while grasses and forbs decreased as a result of competition for light, space, and nutrients. Vegetation communities became less diverse and more even-aged. Woody species (shrubs and trees) increased fuel loading, which increased the potential for large fires.

Human-caused climatic change has also altered vegetation cover and composition. Increases in carbon dioxide levels have been detected globally. Research has shown that higher carbon dioxide levels favor the growth of woody species and some invasive weeds. Increased growth of these plant types in turn contributes to fuel loading.

Over the past 40 years, vegetation conversion projects totaling about 274,000 acres have been completed within the almost 12 million acres managed by the Ely District BLM. These projects were designed to reduce the cover of sagebrush or pinyon and juniper trees and increase the herbaceous vegetation through seeding of grasses and forbs. Trees and shrubs have reestablished in many of these sites. Prescribed fire was the primary method used to maintain these projects. In the past, prescribed fire was also used on a limited basis to enhance riparian areas.

A buildup of hazardous fuels, with the associated potential for a catastrophic fire, has created a high risk urban interface situation, particularly with the housing developments in the Ely community. Watershed protection planning and activities have been initiated because of problems experienced by communities from direct effects of watershed runoff. The Emergency Fire Rehabilitation efforts that have been conducted after wildfires have helped to protect topsoil and minimize invasion by non-native annuals.

Present Actions

About 45 million acres dominated by pinyon and juniper woodlands are under the administration of the BLM. Another 75 million acres either have, or have the potential for, the presence of cheatgrass (Roberts, 1999). Thus, the potential for a catastrophic fire continues because of an unnatural buildup of fuels. However, within the Ely District, fire is being managed in accordance with the Ely Field Office Fire Management Plan as a more natural component of the ecosystem. Near the Ely community, the extent that fire can be used as a management tool is limited. Also, vegetation treatments are not allowed within

watershed protection areas. However, vegetation conversion projects and fire rehabilitation efforts have provided more palatable plant species for wildlife and livestock; thus, indirectly reducing grazing within riparian areas.

Current land management is focused on improving vegetative condition within the plan area. Permitted use by livestock has been established within the project area. Vegetation conversion projects (e.g., mechanical treatments and prescribed fire) are being implemented to create openings within even-aged stands of shrubs and trees (e.g., set succession back to an earlier stage). These projects will better protect the watershed and provide additional forage for large ungulates. Efforts to inventory and minimize the spread of noxious and invasive weeds are continuing. Where invasive species such as cheatgrass dominate areas formerly covered by large patches of sagebrush and grasslands, fires can occur almost annually and shrub cover is declining. In addition to the proposed action, fuel breaks (either man-made or natural barriers), would reduce the extent of pinyon and juniper canopy fires. This practice provides additional protection to homes and other developed facilities from catastrophic fire.

Carbon dioxide levels could continue to increase. The effects of this increase on growth of woody species and invasive weeds will contribute to the need for vegetation management within the Ely District.

Reasonably Foreseeable Future Actions

It is anticipated that the number of natural fire ignitions will be similar to previous years. Managed and prescribed fires will continue to be used on a limited basis. This practice will function to set succession back to an earlier stage and provide more herbaceous forage. As necessary, watersheds will be rehabilitated after fire events. Watersheds will be better protected, with a trend toward a less intensive, more natural fire regime. However, as recreation increases (due to population growth), the incidence of wildland fires will also increase. Budgetary resources available to extinguish these fires may decrease, putting large areas of habitat at risk for permanent conversion to invasive non-native grasses and forbs.

Livestock grazing would continue to be managed to meet Northeastern Great Basin Resource Advisory Council Standards and Guidelines for Grazing Administration. The urban interface will continue to be a concern in the management of fires within the Ely District. This situation will be due to increases in housing developments in the Ely community and construction of recreational facilities (e.g., the proposed ski resort on Ward Mountain). No other vegetation manipulation projects are contemplated within or adjacent to the project site.

Shrub and grass vigor and density would increase within the treated areas, filling the void left by thinned or removed trees. This situation would restore a resilient plant community capable of reestablishing from the surviving seed bank or regrowing from surviving plants following catastrophic fire. This would minimize the period in which the burned area would be susceptible to invasive species. Additionally, efforts to detect and control noxious and invasive weeds would increase. This would minimize the risk of a catastrophic fire near housing developments.

The Great Basin Restoration Initiative (GBRI) has been proposed to restore vegetation communities in this ecosystem. In the Ely District, this initiative would be implemented as the Eastern Nevada Landscape Restoration Project (ENLRP), which could provide matching funding to implement approved activity plans (e.g., fire management plans, allotment management plans, elk management plans, habitat management plans). An Environmental Impact Statement (EIS) will be completed for the Eastern Nevada Landscape Restoration Project which will include a regional cumulative impact analysis. While acreages are yet to be determined, in the foreseeable future up to 100,000 acres within the Ely District may be treated annually through the ENLRP to improve the health of vegetation communities.

Global levels of carbon dioxide are expected to increase through the foreseeable future. This increase would continue to favor the growth of trees and invasive weeds. Continued vegetation management would be required to maintain a mosaic of plant communities (e.g., similar to those that the proposed project would establish) and minimize the growth and spread of non-native species. This would reduce the potential for a fire starting on public lands and burning towards the private property.

4.3.2 Visual Resources

Past Actions

Pinyon and juniper woodlands have dominated much of the landscape in the Ely District. Nevertheless, past land use practices (e.g., mining, woodland harvesting, and livestock grazing) have altered vegetation communities (Section 4.3.1). Highways and OHV trails have also created openings in the woodland canopy. Wildfires, prescribed fires, and mechanical treatments have also affected the vegetation in the region. These factors have contributed to the visual diversity of the landscape. The natural landscape and past land use practices have led to the development of a number of recreational areas (e.g., Ward Charcoal Ovens State Historic Site, Comins Lake), Humboldt National Forest, and the Ely community. However, a number of these activities and developments have resulted in adverse visual impacts to those desiring views of undisturbed, natural landscape vistas.

Elk were re-introduced into eastern Nevada in the 1930s. In addition to providing a resource for hunters, elk provide a non-consumptive visual asset to the area. A pull-off area on Route 6 southeast of Ely has been established for elk viewing.

Present Actions

Highways and other corridors, mining operations, livestock operations, homes, and other developments impact the natural scenic vistas in the region. Nevertheless, the predominantly natural features of the landscape have resulted in over 35 developed and undeveloped recreational facilities within the Ely District. Among other attributes, the recreational facilities provide year-round wildlife and landscape viewing opportunities. Intermittent views (or sounds) of the proposed clearing operations would be possible from some of these recreational facilities, as well as from highways and homes.

As discussed in Section 4.3.1, current land management is focused on improving vegetative conditions within the plan area. While most of the project area is considered VRM Class III, VRM Class I objectives would be met by the proposed project because the action would preserve (or improve) the existing character of the landscape by allowing for natural ecological change. The proposed project would not create vistas unique to the region, but would contribute to the natural landscape diversity that is common to the area.

Because of the success of the elk re-introductions, the number of elk has significantly increased throughout eastern Nevada. This increase necessitates implementation of elk management (a combination of monitoring, transplanting, and hunting) to maintain appropriate population density objectives. Growth and dispersal of the herd increases the potential opportunities for elk viewing.

Reasonably Foreseeable Future Actions

Elk will be managed at appropriate levels.

Approximately 100,000 acres within the Ely District could be treated annually to diversify vegetation communities. Use of managed natural and prescribed fires would result in line, color, and texture contrasts promoting a mosaic pattern of numerous irregularly shaped patches of early and mid-successional vegetation communities (e.g., sagebrush/grass and transition/savanna). Vegetation management would provide more forage for wildlife, increasing wildlife viewing opportunities.

4.3.3 Conclusion-Cumulative Effects

Proposed Action

The cumulative impact would be a mosaic of vegetation communities throughout the plan area, allowing fire to resume a more natural role in the ecosystem while protecting local communities from health and safety impacts from a catastrophic fire. The mosaic of vegetation communities would also improve the aesthetic qualities of the regional landscape while minimizing the potential for a catastrophic fire that would adversely affect visual resources.

No Action

Fuel loading would continue to increase, which could lead to a catastrophic fire and a reduction in the mosaic of vegetative communities. Fire in the vicinity of the Ely Urban Interface would be managed as a full suppression area. Fire would not be allowed to resume a more natural role in the ecosystem. The potential risk to the health and safety of local citizens would continue to be a concern. Aesthetic improvements in the visual resources of the area would be less than those realized for the proposed action.

5 PROPOSED MITIGATION

Mitigation has been included under the proposed action (see Section 2.1.5). No additional mitigation is proposed as a result of impact analysis.

6 PROPOSED MONITORING

Monitoring has been included under the proposed action (see Section 2.1.6). No additional monitoring is proposed as a result of impact analysis.

7 CONSULTATION AND COORDINATION

7.1 PUBLIC INVOLVEMENT

Letters explaining the proposed action and asking for public comment and input were sent to more than 800 individuals, organizations, and public entities on a mailing list maintained by the BLM Ely Field Office and the USFS Ely Ranger District. Written comments were received from more than 30 individuals and organizations. The following Tribal consultations were held to discuss the proposed action andno action alternatives:

- June 12, 2001 – Presentation to the Ely Shoshone Tribal Council
- April 30, 2001 – Tribal Coordination Meeting – Goshute Tribe, Ely Shoshone Tribe, Western Shoshone National Council
- March 2, 2001 – Meeting with Ely Shoshone Tribal Chairman and Environmental Staff
- February 6, 2001 – Tribal Coordination Meeting – Duckwater Shoshone Tribe, Ely Shoshone Tribe
- January 25, 2001 – Tribal Coordination Meeting – Ely Shoshone Tribe, Goshute Tribe, Yomba Shoshone Tribe, Western Shoshone National Council

A public comment period on the draft environmental assessment allowed BLM and USFS to incorporate public concerns into the final environmental assessment and project plan. The following public meetings were held to discuss the proposed action andno action alternatives:

- June 21, 2001 – Rotary International, Ely, Nevada 12:45-1:30 p.m.
- June 14, 2001 – Lincoln County Courthouse, Pioche, Nevada 7:00-8:30 p.m.
- June 12, 2001 – Ely Field Office, BLM, Ely, Nevada 7:00-8:30 p.m.
- June 11, 2001 – White Pine County Public Land Users Advisory Committee Meeting 7:00-8:00 p.m.

- February 15, 2001 – Lincoln County Courthouse, Pioche, Nevada 7-8:30 p.m.

- February 13, 2001 – Ely Field Office, BLM, Ely, Nevada 7-8:30 p.m.

A preliminary version of this environmental assessment was sent out for public review and comment.

Letters of comment were received from the following individuals and organizations:

Committee for Idaho's High Desert, Goods from the Woods, Toiyabe Chapter, Sierra Club, Red Rock Audubon Society, Resource Concepts, Inc. and the Ely Shoshone Tribe.

7.2 INTERNAL REVIEW PROCESS

Comments on the draft document were reviewed by BLM staff and management. Revisions were incorporated into this document, which provides the basis for issuance of the Decision Record/Finding of No Significant Impact for treatment of public lands. A separate decision will be issued for lands within the Humboldt-Toiyabe National Forest.

7.3 PREPARERS

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8 GLOSSARY

Definitions

Adaptive Management Model Systematic process for implementing decisions on a continuous basis, using monitoring and adjustment to incrementally improve resource management as new technology becomes available and social changes demand. This approach uses monitoring and evaluations and will facilitate learning from our actions to assure the improvement of ecosystem health.

Biomass Generally plant material, living or dead: standing or downed. Chipped pinyon and juniper trees are sometimes referred to as biomass.

Community All of the organisms that occupy a common habitat and interact with one another.

Cultural manifestations Any human cultural evidence or activity that is less than 50 years old.

Cultural Resources Remains of human activity, occupation, or endeavor, reflected in districts, sites, structures, buildings, objects, artifacts, ruins, works of art, architecture, and natural features that were important in past human events. Cultural resources consist of (1) physical remains, (2) areas where significant human events occurred, even though evidence of the events no longer remains, and (3) the environment immediately surrounding the actual resource.

Dead Fuel Moisture Dead fuel moisture responds solely to ambient environmental conditions and are critical elements in determining fire potential. Dead fuel moistures are classed by timelag. A fuel's timelag is proportional to its diameter and is loosely defined as the time it takes a fuel particle to reach 2/3's of its way to equilibrium with its local environment. Dead fuels in National Fire Danger Rating System (NFDRS) have four timelag classes:

- 1-hr: Fine flashy fuels, less than 1/4" diameter. Responds quickly to weather changes. Computed from observation time temperature, humidity and cloudiness.
- 10-hr: 1/4 to 1" diameters. Computed from observation time temperature, humidity, and cloudiness, or may be a standard set of "10-Hr Fuel Sticks" that are weighed as part of the fire weather observation.
- 100-hr: 1 to 3" diameter. Computed from 24 hour average boundary condition composed of day length, hours of rain, and daily temperature/humidity ranges.
- 1000-hr: 3 to 6 " diameter. Computed from a 7-day average boundary condition composed of day length, hours of rain, and daily temperature/humidity ranges.

Ecological resiliency The power or ability of an ecosystem to return to the original form or recover.

Ecosystem health A desired condition of ecosystems in which productivity of multiple resources, and ecological values including biodiversity, are resilient to disturbance and sustainable for the long-term.

Fuel All the dead and living material that will burn. This includes grasses, dead branches and pine needles on the ground, as well as standing live and dead trees. Also included are minerals near the surface, such as coal that will burn during a fire, and human-built structures.

Fuel loading The weight per unit area of fuel often expressed in tons per acre or tonnes per hectare. The amount of combustible material (living and dead plants and trees) that is found in an area.

Geographic Information System (GIS) A computer system for capturing, storing, checking, integrating, manipulating, analyzing and displaying data related to positions on the Earth's surface. Typically, a GIS is used for handling maps of one kind or another. These might be represented as several different layers where each layer holds data about a particular kind of feature (e.g., roads). Each feature is linked to a position on the graphical image of a map.

Global Positioning System (GPS) A system of satellites, computers, and receivers that is able to determine the location of a receiver on Earth by calculating the time difference for signals from different satellites to reach the receiver. GPS positions can be saved and entered into a Geographical Information System (GIS) database for creating maps and other spatial analysis.

Inventory The systematic acquisition and analysis of information needed to describe, characterize, or quantify resources for land use planning and management of the public lands.

Monitoring The orderly collection, analysis, and interpretation or resource data to evaluate progress toward meeting management objectives.

Objective Planned results to be achieved within a stated time period. Objectives are subordinate to goals, are narrower and shorter in range, and have increased possibility of attainment. Time periods for completion, and outputs or achievements that are measurable and quantifiable are specified.

Prescription Measurable criteria which guides selection of appropriate management actions.

Project area The general area of hazardous fuels reduction. Two project areas have been identified: the Ely Urban Interface Project and the Mount Wilson Guest Ranch Community Project. Cutting, chipping and spreading of pinyon and juniper trees will occur within these project areas.

Root collar Transition point between the stem and root of a plant species.

Ruts Depressions in the soil surface created by the movement of wheeled and/or tracked vehicles.

Silvicultural Care and cultivation of forest trees.

State Historic Preservation Officer (SHPO) The authorized official within each State, who, at the request of the Secretary of the Interior, acts as a liaison for implementing the National Historic Preservation Act of 1966.

Stringers A linear assemblage of trees on the landscape, generally occurring in a matrix of grasslands or shrublands and often associated with drainages.

Time-Domain-Reflectometry (TDR) A method that uses the timing of electromagnetic wave reflections to determine the properties of various materials, such as the dielectric constant of soil as an indication of water content.

Transition/savanna The region where there is an increase in tree density moving from rangeland to woodland communities.

Treatment area The area where trees will be cut, chipped and spread.

Tree A woody perennial, usually a single-stemmed plant, that has a definite crown shape and characteristically reaches a mature height of at least 16 feet. Some plants may grow as either trees or shrubs.

Urban Interface The urban wildland interface community exists where humans and their development meet or intermix with wildland fuel. The development density for an interface community is usually 3 or more structures per acre, with shared municipal services. (Federal Register, 2001).

Vegetation prescriptions Criteria or guidelines developed to alter the current vegetative trends to more natural or desirable vegetative conditions.

Volumetric Soil Moisture The soil-water content expressed as the volume of water per unit bulk volume of soil. Sometimes expressed as a percentage.

Wildlife trees A single tree or group of trees that provide habitat to wildlife.

Woodland A unit of vegetation where the climax plant community is dominated by a tree overstory.

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APPENDIX A:

RISK ASSESSMENT FOR NOXIOUS WEEDS

On June 26, 2001, a Noxious Weed Risk Assessment was completed for the Ely and Mount Wilson hazardous fuels reduction projects located in White Pine and Lincoln Counties, Nevada. The projects involve approximately 31,300 acres (9,400 acres in the Ely area and approximately 21,900 acres in Mount Wilson Guest Ranch Community area) which have not been surveyed completely for noxious weed occurrence.

Factor 1 – Assess the likelihood of noxious weed species spreading to the project area.

For this project, the factor rates as Low 2 at the present time. This means that portions of both areas have been inventoried over the last two years. Noxious weed species present include spotted knapweed, Russian knapweed, and hoary cress. Inventories have been limited to existing major roadways that bisect the project area, and adjacent open rangelands. All known weed occurrences are limited to the existing roads, and all areas that were inventoried outside of the immediate vicinity of those roads were free of weeds.

Factor 2 – Assesses the consequences of noxious weed establishment in the project area.

For this project, the factor rates as Moderate 4. This means that the prevalent weed species for that area are already established. Both treatment areas are identified for Fiscal Year 2001 and beyond for weed treatment in known areas using herbicides, and it is anticipated that any noxious weed infestations which develop within the treatment areas would be identified and treated early before they become widespread. In addition, the project proposal incorporates several prevention measures in order to minimize the risks of weed spread. These measures include avoidance of known weed areas by treatment equipment, cleaning of equipment prior to entry of the project area, and subsequent cleaning of equipment if travel through weed areas is unavoidable. Project inspectors and Contracting Officer's Representative will be briefed on known weed locations and will ensure that any work in that area avoids these sites.

The Risk Rating is obtained by multiplying Factor 1 by Factor 2.

For this project, the Risk Rating is Low 8. This means that there is some risk that weeds will become established in the project area as a result of implementation of the project; however, with early detection and control, there is little chance that they will spread beyond the site of first establishment.

Reviewed by: _____ _____

Noxious Weed Coordinator Date